

| <u>SUBJECT</u> | | <u>DATE</u> |
|--------------------------------------------------------------------------------------------------|--------|--------------|
| 1056. Hazardous Waste Tanks and the Less than 90-Day Accumulation Time Limit | ENCORE | APR 23, 2015 |
| 1057. Decharacterized RCRA Waste - Manifesting and LDR Reporting | ENCORE | APR 30, 2015 |
| 1058. Decharacterized Hazardous Waste Listed Solely for Non-Toxic Characteristics | ENCORE | MAY 7, 2015 |
| 1059. Decharacterized Wastes, <90-Day Accumulation Time Limits and LDR Storage Prohibition | ENCORE | MAY 14, 2015 |
| 1060. Decharacterized Wastes and the LDR Dilution Prohibition | ENCORE | MAY 21, 2015 |
| 1061. Hazardous Debris Macroencapsulation and Size Reduction | ENCORE | MAY 28, 2015 |
| 1062. Universal Waste Lamps and Prohibition on Crushing | | JUN 4, 2015 |
| 1063. F003 Listed Hazardous Waste and the 10% Rule | ENCORE | JUN 11, 2015 |
| 1064. F001 - F005 Listed Hazardous Waste and the 10% Rule | ENCORE | JUN 18, 2015 |
| 1065. Macroencapsulation of Hazardous Debris and Presence of Free Liquids | ENCORE | JUN 25, 2015 |
| 1066. DOT Shipping of Damaged, Defective or Recalled Lithium Batteries | | JUL 1, 2015 |
| 1067. Used Oil Eligibility for Animal and Vegetable Oils | ENCORE | JUL 9, 2015 |
| 1068. Used Oil Eligibility for Petroleum Oils Mixed with Animal or Vegetable Oils | | JUL 16, 2015 |
| 1069. Conditioned Exclusion for Listed Hazardous Waste Debris Treated via Extraction/Destruction | ENCORE | JUL 23, 2015 |
| 1070. Conditioned Exclusion for Characteristic Debris Treated via Immobilization | | JUL 30, 2015 |
| 1071. RCRA Personnel Training and Classroom Training vs. Online Training | | AUG 6, 2015 |
| 1072. PCB Decontamination Standards with No Decontamination Performed | | AUG 13, 2015 |
| 1073. PCB Manifest Exceptions a.k.a. When is a PCB Manifest Not Required | ENCORE | AUG 19, 2015 |
| 1074. PCB Manifest Relief a.k.a. When is a PCB Manifest Not Required – The Sequel | | AUG 27, 2015 |
| 1075. Hazardous Debris and Radioactively Contaminated Cadmium Batteries | ENCORE | SEP 3, 2015 |
| 1076. Hazardous Debris and Radioactively Contaminated Lead Acid Batteries | ENCORE | SEP 10, 2015 |
| 1077. Mercury Wet Cell Batteries - Debris or Not Debris | ENCORE | SEP 17, 2015 |
| 1078. Hazardous Debris and Non-Radioactive Lead Acid Batteries | | SEP 24, 2015 |
| 1079. Unused Paraformaldehyde - U Listed Hazardous Waste or Not? | ENCORE | OCT 1, 2015 |
| 1080. CAS Numbers and the Hazardous Waste "U" and "P" Listings | ENCORE | OCT 8, 2015 |
| 1081. Universal Waste One Year Accumulation and Multiple Handlers | ENCORE | OCT 15, 2015 |
| 1082. LDR Notifications and F001-F005 Constituents of Concern | ENCORE | OCT 29, 2015 |
| 1083. LDR Notifications and F001-F005 Constituents of Concern – Again | ENCORE | NOV 5, 2015 |
| 1084. LDR Notifications and F001-F005 Constituents of Concern - One Last Time | ENCORE | NOV 12, 2015 |
| 1085. DOT and Terminal Protection of Alkaline Batteries | ENCORE | NOV 19, 2015 |
| 1086. Used Oil and Keeping Containers Closed – WAC 173-303 vs. 40 CFR 279 | | NOV 24, 2015 |
| 1087. PCB Weight Determinations | ENCORE | DEC 3, 2015 |
| 1088. Satellite Accumulation Requirements and Container Inspections | ENCORE | DEC 10, 2015 |
| 1089. 'Twas The Night Before Christmas - The Twenty-Third Annual Edition | ENCORE | DEC 24, 2015 |
| 1090. Satellite Accumulation and 85-Gallon Containers | ENCORE | DEC 31, 2015 |
| 1091. PCB Date Removed From Service Notations – On the Item or In a Log | ENCORE | JAN 7, 2016 |
| 1092. The Date Removed From Service Marking on the PCB Mark | ENCORE | JAN 14, 2016 |
| 1093. Generator Weekly Inspection Log Documentation – Federal vs. WA State | ENCORE | JAN 21, 2016 |
| 1094. Used Oil and Weekly Inspections | ENCORE | JAN 28, 2016 |
| 1095. TSCA/PCB Determinations for Fluorescent Light Ballasts via the Manufacture Date | ENCORE | FEB 4, 2016 |
| 1096. PCB Containers and Multiple Removed From Service Dates | ENCORE | FEB 11, 2016 |
| 1097. Generator Inspection Logs and Corrective Action Documentation | ENCORE | FEB 18, 2016 |
| 1098. PCB Concentrations and Micrograms per Centimeters Squared (µg/cm ²) | | FEB 25, 2016 |
| 1099. RCRA Empty Containers and Removing as Much Waste as Possible | ENCORE | MAR 3, 2016 |
| 1100. PCB Incineration and "Six Nines" Destruction Removal Efficiency Criteria | ENCORE | MAR 10, 2016 |
| 1101. RCRA Treatment and The Two-Part Definition | | MAR 17, 2016 |
| 1102. D002 Waste and Dilution as Adequate LDR Treatment | ENCORE | MAR 24, 2016 |

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TWO MINUTE TRAINING

TO: CH2M HILL PLATEAU REMEDIATION COMPANY

FROM: PAUL W. MARTIN, RCRA Subject Matter Expert
CHPRC Environmental Protection, Hanford, WA

SUBJECT: D002 WASTE AND DILUTION AS ADEQUATE LDR TREATMENT

DATE: MARCH 24, 2016

| <u>CHPRC Projects</u> | <u>CH PRC - Env. Protection</u> | <u>MSA</u> | <u>Hanford Laboratories</u> | <u>Other Hanford Contractors</u> | <u>Other Hanford Contractors</u> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Richard Austin Roni Ashley Tania Bates Bob Cathel Rene Catlow Richard Clinton Larry Cole John Dent Brian Dixon Eric Erpenbeck Stuart Hildreth Mike Jennings Stephanie Johansen Jeanne Kisielnicki Melvin Lakes Marty Martin Jim McGrogan Stuart Mortensen Anthony Nagel Dean Nester Dave Richards Phil Sheely Connie Simiele Jennie Stults Michael Waters Jeff Widney | Brett Barnes Mitch Boyd Ron Brunke Bill Cox Laura Cusack Lorna Dittmer Rick Engelmann Ted Hopkins Sasa Kosjerina Jim Leary Dale McKenney Jon McKibben Rick Oldham Linda Petersen Fred Ruck Ray Swenson Wayne Toebe Lee Tuott Daniel Turlington Dave Watson Joel Williams | Jerry Cammann Jeff Ehliis Garin Erickson Lori Fritz Panfilo Gonzales Jr. Dashia Huff Mark Kamberg Edwin Lamm Candice Marple Saul Martinez Jon Perry Thomas Pysto Christina Robison Don Rokkan Lana Strickling Lou Upton | (TBD) <u>DOE RL, ORP, WIPP</u> Mary Beth Burandt Duane Carter Cliff Clark Mike Collins Tony McKarns Ellen Mattlin Greg Sinton Scott Stubblebine | Bill Bachmann Dean Baker Scott Baker Lucinda Borneman Paul Crane Tina Crane Greta Davis Jeff DeLine Ron Del Mar John Dorian Mark Ellefson Darrin Faulk Joe Fritts Tom Gilmore Rob Gregory Gene Grohs James Hamilton Andy Hobbs Ryan Johnson Dan Kimball Megan Lerchen Richard Lipinski Charles (Mike) Lowery Michael Madison Terri Mars Cary Martin Grant McCalmant Steve Metzger Tony Miskho Matt Mills Tom Moon Chuck Mulkey Mandy Pascual Kirk Peterson Jean Quigley | Dan Saueressig Merrie Schilperoort Joelle Moss Glen Triner Greg Varljen Julie Waddoups Jay Warwick Kyle Webster Jeff Westcott Ted Wooley |

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TWO MINUTE TRAINING

SUBJECT: D002 Waste and Dilution as Adequate LDR Treatment

Q: A customer has a container of waste acid ($\text{pH} \leq 2$) that exhibits the characteristic of corrosivity and has been assigned the hazardous waste code D002. The land disposal restriction (LDR) treatment standard for this waste is "DEACT" (deactivation - remove the characteristic) and treat for underlying hazardous constituents (UHCs). The customer has determined that no UHCs are present and therefore wants to simply add water to the waste to raise the pH to >2 and remove the characteristic. Can the customer add water to this waste acid in order to meet the LDR treatment standard of DEACT or would this be considered impermissible dilution?

A: Per [40 CFR 268.3\(a\)](#), it basically states that dilution of an LDR waste cannot occur as a substitute for adequate LDR treatment. There is an exception to the dilution prohibition in 40 CFR 268.3(b) but it is limited to management in Clean Water Act (CWA) systems or CWA equivalent systems.

However, [40 CFR 268, Appendix VI](#), "Recommended Technologies to Achieve Deactivation Of Characteristics In Section 268.42" provides other specified treatment options for meeting the DEACT standard. Per this table, a D002 waste with a pH of ≤ 2 can be deactivated by using the specified technologies of RCORR (recovery of acids or bases), INCIN (incineration) or NEUTR (neutralization). A review of [40 CFR 268.42](#), "Treatment standards expressed as specified technologies" defines NEUTR as: "Neutralization with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals".

Therefore, per the EPA recommended technologies in 40 CFR 268, Appendix VI, our customer could add water to the acid waste in order to meet the DEACT treatment standard. When the addition of water creates a pH >2 , the waste would be deactivated and the LDR treatment standard achieved. This dilution would be permissible since EPA considers it adequate LDR treatment.

Note that if the customer's acidic waste had also contained UHCs, neutralization alone would not be an adequate form of treatment since the UHCs would be impermissibly diluted. An acidic or basic waste with UHCs could be neutralized to remove the corrosive characteristic but then subsequent treatment would be required such as solidification or incineration to address any UHCs.

SUMMARY:

- The LDR treatment standard of DEACT can be achieved via NEUTR.
- NEUTR includes neutralization with water that results in a pH greater than 2 but less than 12.5.
- Adding water to a waste acid with no UHCs would not be considered impermissible dilution since EPA has determined that NEUTR is an adequate form of treatment for DEACT.

Excerpts from 40 CFR 268.3, 268.42 and 268, Appendix VI are attached to the e-mail. If you have any questions, please contact me at "Paul_W_Martin@rl.gov" or at (509) 376-6620.

FROM: Paul W. Martin

DATE: 3/24/16

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TWO MINUTE TRAINING - ATTACHMENT

SUBJECT: D002 Waste and Dilution as Adequate LDR Treatment

40 CFR 268.3 Dilution prohibited as a substitute for treatment.

- (a) Except as provided in paragraph (b) of this section, no generator, transporter, handler, or owner or operator of a treatment, storage, or disposal facility shall in any way dilute a restricted waste or the residual from treatment of a restricted waste as a substitute for adequate treatment to achieve compliance with subpart D of this part, to circumvent the effective date of a prohibition in subpart C of this part, to otherwise avoid a prohibition in subpart C of this part, or to circumvent a land disposal prohibition imposed by RCRA section 3004.
- (b) Dilution of wastes that are hazardous only because they exhibit a characteristic in treatment systems which include land- based units which treat wastes subsequently discharged to a water of the United States pursuant to a permit issued under section 402 of the Clean Water Act (CWA), or which treat wastes in a CWA-equivalent treatment system, or which treat wastes for the purposes of pretreatment requirements under section 307 of the CWA is not impermissible dilution for purposes of this section unless a method other than DEACT has been specified in §268.40 as the treatment standard, or unless the waste is a D003 reactive cyanide wastewater or nonwastewater.

40 CFR 268, Appendix VI

Recommended Technologies to Achieve Deactivation of Characteristics in Section 268.42

The treatment standard for many characteristic wastes is stated in the §268.40 Table of Treatment Standards as “Deactivation and meet UTS.” EPA has determined that many technologies, when used alone or in combination, can achieve the deactivation portion of the treatment standard. Characteristic wastes that are not managed in a facility regulated by the Clean Water Act (CWA) or in a CWA-equivalent facility, and that also contain underlying hazardous constituents (see §268.2(i)) must be treated not only by a “deactivating” technology to remove the characteristic, but also to achieve the universal treatment standards (UTS) for underlying hazardous constituents. The following appendix presents a partial list of technologies, utilizing the five letter technology codes established in 40 CFR 268.42 Table 1, that may be useful in meeting the treatment standard. Use of these specific technologies is not mandatory and does not preclude direct reuse, recovery, and/or the use of other pretreatment technologies, provided deactivation is achieved and underlying hazardous constituents are treated to achieve the UTS.

| Waste code/subcategory | Nonwastewaters | Wastewaters |
|---------------------------------------------------------------------------------------|-------------------------|----------------|
| D002 Acid Subcategory based on 261.22(a)(1) with pH less than or equal to 2 | RCORR NEUTR INCIN | NEUTR INCIN |
| D002 Alkaline Subcategory based on 261.22(a)(1) with pH greater than or equal to 12.5 | NEUTR INCIN | NEUTR INCIN |

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TWO MINUTE TRAINING - ATTACHMENT

SUBJECT: D002 Waste and Dilution as Adequate LDR Treatment

40 CFR 268.42 Treatment standards expressed as specified technologies.

- (a) The following wastes in the table in §268.40 "Treatment Standards for Hazardous Wastes," for which standards are expressed as a treatment method rather than a concentration level, must be treated using the technology or technologies specified in the table entitled "Technology Codes and Description of Technology-Based Standards" in this section.

Table 1-Technology Codes and Description of Technology-Based Standards

| Technology code | Description of technology-based standards |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEACT: | Deactivation to remove the hazardous characteristics of a waste due to its ignitability, corrosivity, and/or reactivity. |
| NEUTR: | Neutralization with the following reagents (or waste reagents) or combinations of reagents: (1) Acids; (2) bases; or (3) water (including wastewaters) resulting in a pH greater than 2 but less than 12.5 as measured in the aqueous residuals. |

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DATE: 3/24/16

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